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on May 20, 2002

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PATENT

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Floeter et al.
Serial No.: 10/045,405
Filed: November 20, 2001
For: EDIBLE SPREAD CONTAINING A NATURAL FAT PHASE

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SUBMISSION OF PRIORITY DOCUMENT

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

Pursuant to rule 55(b) of the Rules of Practice in Patent Cases, Applicant(s) is/are submitting herewith a certified copy of the European Application No. 00204120.0 filed November 21, 2000, and European Application No. 01201916.2 filed May 21, 2001, upon which the claim for priority under 35 U.S.C. § 119 was made in the United States.

It is respectfully requested that the priority document be made part of the file history.

Respectfully submitted,

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Bescheinigung

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The attached documents
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Patentanmeldung Nr. Patent application No. Demande de brevet n°

00204120.0

Der Präsident des Europäischen Patentamts;
Im Auftrag

For the President of the European Patent Office

Le Président de l'Office européen des brevets
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Blatt 2 der Bescheinigung
Sheet 2 of the certificate
Page 2 de l'attestation

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Titre de l'invention:
Edible spread containing a natural fat phase

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10 EDIBLE SPREAD CONTAINING A NATURAL FAT PHASE

The present invention deals with an edible emulsion spread
15 containing a natural fat phase and a process for its
preparation.

BACKGROUND AND PRIOR ART

20

Oldest edible emulsion spread is butter, consisting of a
continuous fat phase and an aqueous phase which is
dispersed as fine droplets in the fat phase. The fat phase
consists of dairy fat, a 100% natural fat. Margarine also
25 is a fat continuous emulsion, but margarine fat does not
contain natural fat but a fat which has been processed, in
order to impart to margarine the desired properties. Its
fat phase is a mixture of a fat which is fully liquid and a
fat which is solid at ambient temperature. Both are nearly
30 always derived from vegetable oils.

The solid fat, denoted as hardstock fat, serves to
structure the fat phase and helps to stabilize the
emulsion. For imparting to common margarine a semi-solid,

plastic, spreadable consistency this stabilizing functionality plays an important role. The crystals of the solid fat form a network throughout the liquid oil resulting into a structured fat phase. The aqueous phase droplets are fixed within the spaces of the lattice of solid fat crystals. In this way coalescence of the droplets and separation of the heavier aqueous phase from the fat phase is prevented.

- 10 The type of fat and the ratio of liquid and solid fat is chosen such that after proper processing of the mixture together with an aqueous phase a product with a suitable plastic consistency and mouthfeel is obtained. In order to obtain the expected consistency wrapper margarines need
15 more solid fat than tub margarines.

For spread preparation vegetable fats are preferred over animal fats because their beneficial fat composition contributes to the spread's nutritional value. Besides that
20 vegetable fats are abundant and relatively cheap.

However, solid vegetable fats which are suited as hardstock fat are rather rare. It has appeared that fats with a high content of HUH triglycerides show good structuring properties. The meaning of H is a C16-C24 saturated fatty
25 acid residue, such as palmitic acid (C16) or stearic acid (C18) and U denotes an unsaturated C18 fatty acid residue, such as oleic acid (C18:1) or linoleic acid (C18:2).

Cacao butter contains a high amount of HUH triglycerides. Nevertheless a spread prepared with cacao butter as
30 hardstock fat shows defects of which the most serious is the formation of fat grains which presence imparts to the spread a gritty mouthfeel. It has been found that a high content of palmitic acid in the hardstock fat is the cause

of this phenomenon.

Another fat with a high content of HUH triglycerides is the stearin fraction of shea fat. It contains 73 wt.% of HUH
5 where nearly all H are stearic acid residues and nearly all U are oleic acid residues. However, the high processing costs of shea stearin are prohibitive for its commercial use in spreads. Natural non-processed hardstock fats with a high HUH content in which H mainly is a stearic acid
10 residue are not known.

Besides fractionation, also hydrogenating and, optionally, interesterification are known and much used processes for turning liquid vegetable oils into suitable hardstock fats.
15 The present trend in food processing is to avoid chemical treatments as much as possible and to rely on natural ingredients and natural processing. The present invention provides in the need of a natural non-processed hardstock fat with a high SOS content.

20

SUMMARY OF THE INVENTION

The present invention resides in the discovery that a known
25 African vegetable fat has such beneficial composition that without any processing it can be used as a natural hardstock fat in spread manufacture. The fat as such is known under the name Allanblackia. It contains 65 wt.% of StOSt triglyceride, where St is a stearic acid residue and
30 O is an oleic acid residue.

The present invention provides an edible W/O emulsion spread comprising a continuous fat phase which contains a structuring hardstock fat, characterized in that the

hardstock fat originates from vegetable matter and that at least 50 wt.% of the hardstock fat consists of SOS triglyceride and with the proviso that a hardstock fat which has been subjected to other processing than a refining or purification treatment is excluded. In this specification S denotes a fatty acid residue with a C18-C24 carbon chain and O denotes an oleic acid residue.

The invention further provides a process for the preparation of an edible W/O emulsion spread comprising

- emulsifying a fat phase which comprises a liquid oil and a structuring hardstock fat with an aqueous phase and
- cooling and working the emulsion to obtain a spreadable emulsion,

characterized in that the hardstock fat originates from vegetable matter and that at least 50 wt.% of the hardstock fat consists of SOS triglycerides and with the proviso that a hardstock fat which has been subjected to other processing than a refining or purification treatment is excluded.

25 DETAILS OF THE INVENTION

The present invention relates to edible emulsion spreads, particularly to fat continuous emulsion spreads, more particularly margarine, which contains 80 wt.% of fat.

30 However, the invention can be used also for the known fat continuous spreads which contain reduced amounts of fat, even as low as 20 wt.%.

Allanblackia fat is harvested from the African plant Allanblackia of which several varieties are known. All varieties share a substantially common fatty acids pattern and triglyceride composition. Earlier the fat had found 5 some employment as an ingredient in chocolate manufacture, but never it has been considered for use in the manufacture of fat continuous emulsion spreads.

With a high (60-80 wt.%) content of SOS triglycerides, a low SSS content and the remainder of the fat mainly 10 consisting of SOO Allanblackia is an ideal hardstock fat. After refining no further modification treatment is necessary. After admixture with a liquid oil a structured fat is obtained which shows a steep melting curve. A spread 15 prepared with such fat phase preserves its solid consistency from refrigerator temperature up to ambient or even slightly elevated temperatures, while when swallowed it shows a quick and pleasant melting in the mouth.

A fat containing more than 50 wt.% of SOS triglycerides is a 20 much desired hardstock fat. Until now no method is known for realizing an economical production of such fats.

Presently, among the unmodified fats no other fat than Allanblackia fat is known to contain at least 50 wt.% of SOS triglycerides. For spread preparation the Allanblackia 25 fat may be admixed with other hardstock fat provided the mixture contains at least 50 wt.% of SOS triglycerides. The ratio is in the range of 5-100 wt.% of Allanblackia fat and 95-0 wt.% of other hardstock fat.

30 The liquid oil may be any liquid vegetable oil and suitably is a commodity oil chosen from the group consisting of: rapeseed oil, sunflower oil, cottonseed oil, soybean oil, olive oil and mixtures of those oils.

A suitable blending ratio for the fat phase is 30 wt.% of hardstock fat and 70 wt.% of a liquid oil. When the hardstock fat is 100% Allanblackia fat and the liquid oil is rapeseed oil, the resulting oil phase contains 23% SAFA 5 which is acceptable from a nutritional point of view.

The aqueous phase contains the usual spread ingredients as are water, one or more emulsifiers, gelling and/or thickening agents, salt, colouring agent, flavour, 10 preservative and dairy protein.

For the preparation of the spread one can use common spread manufacturing technology:

The aqueous phase and the fat phase are prepared by mixing 15 the respective ingredients. Then both phase are emulsified. The crude pre-emulsion is subjected to the usual cooling and working treatments so that eventually a plastic spread product is obtained.

20 Apart from some minor ingredients the invented spread can be prepared with only natural materials. Natural means that the materials after harvesting have been subjected to no other treatment than a refining or purification treatment and not to any modification treatment whatsoever. This 25 feature strongly appeals to present consumer appreciation, but also contributes to the economy of the production process.

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C L A I M S

1. Edible W/O emulsion spread comprising a continuous fat phase which contains a structuring hardstock fat, characterized in that the hardstock fat originates from vegetable matter and that at least 50 wt.% of the hardstock fat consists of SOS triglycerides, where S denotes a fatty acid residue with a C18-C24 carbon chain and O denotes an oleic acid residue and with the proviso that a hardstock fat which has been subjected to other processing than a refining or purification treatment is excluded.

2. Spread according to claim 1, characterized in that 5 - 100 wt.% of the hardstock fat is Allanblackia fat.

3. Spread according to claim 2, characterized in that 100 wt.% of the hardstock fat is Allanblackia fat.

4. Process for the preparation of an edible W/O emulsion spread comprising

- emulsifying a fat phase which comprises a liquid oil and a structuring hardstock fat with an aqueous phase and
- cooling and working the emulsion to obtain a spreadable emulsion,

characterized in that the hardstock fat originates from vegetable matter and that at least 50 wt.% of the hardstock fat consists of SOS triglycerides and with the proviso that a hardstock fat which has been subjected to other processing than a refining or purification treatment is excluded.

5. Use of Allanblackia fat as a hardstock fat for structuring liquid triglyceride fat.

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Edible W/O emulsion spread comprising a continuous fat phase which contains a structuring hardstock fat, which hardstock fat is vegetable and contains at least 50 wt.% of SOS triglyceride (S is stearic acid residue and O is oleic acid residue). A fat with such composition is isolated from the plant Allanblackia.